ceramics, metals, resins, gels, membranes and chips].

Please add claims 65-110 as follows.

—65. The method of claim 5, wherein the solid support is selected from the group consisting of plastics, ceramics, metals, resin, gels, membranes and chips.—

—66. The method of claim 5, wherein the solid support is a two-dimensional or a three-dimensional matrix with multiple probe binding sites.—

—67. The method of claim 1, wherein the probes are labelled with a detectable label.—

—68. The method of claim 1, wherein the detectable label is selected from the group consisting of a radioisotope, a stable isotope, an enzyme, an antibody, a fluorescent chemical, a luminescent chemical, a chromatic chemical, and a metal.—

—69. The method of claim 1, wherein the nucleic acids are DNA, RNA, PNA or a combination thereof.—

—70. An array of nucleic acid probes, wherein each probe has a double-stranded portion, a single stranded portion, and a random nucleotide sequence
within the single-stranded portion.—

—71. The array of claim 70 comprising 4^R different nucleic acid probes, wherein R is the length of a random nucleotide sequence within the single-stranded protion of said probe.—

—72. The array of claim 70, wherein the double-stranded portion is between about 3-20 nucleotides and the single-stranded portion is between about 3-20 nucleotides.—

—73. The array of claim 70, wherein the double-stranded portion is between 3-20 nucleotides and the single-stranded portion is between 3-20 nucleotides.—

—74. The array of claim 70, wherein the nucleic acid probes are fixed to a solid support.—

—75. The array of claim 74, wherein the solid support is selected from the group consisting of plastics, ceramics, metals, resins, gels, membranes and chips.—

—76. The array of claim 74, wherein the solid support is a two-dimensional or a three-dimensional matrix with multiple probe binding sites.—

—77. The array of claim 70, wherein the probes are labelled with a detectable label.—

—78. The array of claim 77, wherein the detectable label is selected from the group consisting of a radioisotope, a stable isotope, an enzyme, an antibody, a fluorescent chemical, a luminescent chemical, a chromatic chemical, and a metal.—

—79. The array of claim 70, wherein the nucleic acids are DNA, RNA, Protein Nucleic Acid (PNA), or a combination thereof.—

—80. A method for detecting a target nucleic acid in a biological sample comprising:

a) contacting the array of probes with the sample, wherein each probe has a double-stranded portion, a single-stranded portion, and a random sequence within the single-stranded portion; and

b) identifying hybrids, whereby the target nucleic acid is detected.—

—81. The method of claim 80, wherein the biological sample is selected from the group consisting of samples of animal tissue, environmental substances, manufacturing products and by-products.—

—82. The method of claim 81, wherein the animal tissue is obtained from a human.—

—83. The method of claim 80, further comprising the step of purifying the target nucleic acids detected.—

—84. The method of claim 80, wherein the set of nucleic acid probes is fixed to

a solid support.—

—85. The method of claim 84, wherein the solid support is selected from the group consisting of plastics, ceramics, metals, resin, gels, membranes and chips.—

—86. The method of claim 84, wherein the solid support is a two-dimensional or a three-dimensional matrix with multiple probe binding sites.—

—87. The method of claim 80, wherein the target nucleic acids or the probes are labelled with a detectable label.—

—88. The method of claim 87, wherein the detectable label is selected from the group consisting of radioisotope, a stable isotope, an enzyme, an antibody, a fluorescent chemical, a luminescent chemical, a chromatic chemical, and a metal.—

—89. A solid support, comprising an array of nucleic acid probes, wherein each probe has a double-stranded portion, a single-stranded portion, and a random sequence within the single-stranded portion.—

—90. The solid support of claim 89, wherein the solid support is selected from the group consisting of plastics, ceramics, metals, resin, gels, membranes and chips.—

—91. The solid support of claim 89, wherein the solid support is a two-dimensional or a three-dimensional matrix with multiple probe binding sites.—

—92. The solid support of claim 89, wherein the probes are labelled with a detectable label.—

—93. The solid support of claim 92, wherein the detectable label is selected from the group consisting of radioisotope, a stable isotope, an enzyme, an antibody, a fluorescent chemical, a luminescent chemical, a chromatic chemical, and a metal.—

—94. The solid support of claim 89, wherein the nucleic acids are DNA, RNA, Protein Nucleic Acid (PNA), or a combination thereof.—

—95. A method of sequencing a target nucleic acid, comprising the steps of:

i) hybridizing the target nucleic acid to an array of nucleic acid probes; and

ii) determining a hybridation pattern; whereby the target nucleic acid is sequenced by analyzing the hybridization pattern, wherein:

a) the nucleic acid target is at least partly single-stranded; and

b) each probe comprises a double-stranded portion, a single stranded portion, and a random sequence within the single-stranded portion.—

—96. The method of claim 95, further comprising the step of ligating the hybridized target to the probe.—

—97. The method of claim 95, further comprising the step of enzymatically extending a strand of the probe using the hybridized target as a template.—

C3

—98. The method of claim 97, wherein the probe is enzymatically extended by a DNA polymerase.—

—99. The method of claim 97, wherein the probe is enzymatically extended by DNA polymerase using a single deoxynucleotide triphosphate or dideoxynucleotide triphosphate.—

—100. The method of claim 95, further comprising the steps of ligating the hybridized target to the probe, and enzymatically extending a strand of the probe using the hybridized target as a template.—

—101. The method of claim 100, wherein the probe is enzymatically extended by a DNA polymerase.—

—102. The method of claim 100, wherein the probe is enzymatically extended by DNA polymerase using a single deoxynucleotide triphosphate or dideoxynucleotide triphosphate.—

—103.The method of claim 95, wherein the nucleic acids are DNA, RNA, PNA, or a combination thereof.—

—104.The method of claim 95, wherein the set of nucleic acid probes is fixed to a solid support.—

—105.The method of claim 104, wherein the solid support is selected from the group consisting of plastics, ceramics, metals, resin, gels, membranes and chips.—

—106.The method of claim 104, wherein the solid support is a two-dimensional or a three-dimensional matrix with multiple probe binding sites.—

—107.The method of claim 95, wherein the target nucleic acid or the probes are labelled with a detectable label.—

—108.The method of claim 107, wherein the detectable label is selected from the group consisting of radioisotope, a stable isotope, an enzyme, an antibody, a fluorescent chemical, a luminescent chemical, a chromatic chemical, and a metal.—

—109.The method of claim 95, wherein the hybridization pattern is analyzed by a computer.—

—110.A method of sequencing a target nucleic acid comprising the steps of:

i) hybridizing the target nucleic acid to an array of nucleic acid probes; and

ii) detecting the hybridized target nucleic acid; whereby the target nucleic acid is sequenced,

wherein:

a) the nucleic acid target is at least partly single-stranded; and

b) each probe comprises a double-stranded portion, a single stranded portion, and a random sequence within the single-stranded portion.—